

IMPROVED FRAMING FOR AN ADAPTIVE MODULATION COMMUNICATION SYSTEM

ABSTRACT

A system and method for mapping a combined frequency division duplexing (FDD) Time Division Multiplexing (TDM)/Time Division Multiple Access (TDMA) downlink subframe for use with half-duplex and full-duplex terminals in a communication system. Embodiments of the downlink subframe vary Forward Error Correction (FEC) types for a given modulation scheme as well as support the implementation of a smart antennae at a base station in the communication system. Embodiments of the system are also used in a TDD communication system to support the implementation of smart antennae. A scheduling algorithm allows TDM and TDMA portions of a downlink to efficiently co-exist in the same downlink subframe and simultaneously support full and half-duplex terminals. The algorithm further allows the TDM of multiple terminals in a TDMA burst to minimize the number of map entries in a downlink map. The algorithm limits the number of downlink map entries to not exceed $2n + 1$, where n is the number of DL PHY modes (modulation/FEC combinations) employed by the communication system.

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